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18 September 2024

Twin Waters West Sunshine Coast Queensland EPBC referral by Stockland Pty Ltd.

The Organisation Sunshine Coast Association of Residents Inc. (OSCAR) is a non-partisan, not-for-profit umbrella/peak organisation covering resident and community organisations on the Sunshine Coast and Noosa Local Government Areas (LGAs) in South East Queensland.

OSCAR currently has over 35 member groups from the Pumicestone Passage to Noosa and from the Coast to the hinterland and ranges.

> *The OSCAR overarching Vision states: "The residents of this region enjoy being part of a connected and engaged community living in an area of outstanding natural beauty. They recognise that they are custodians of the unique and abundant biodiversity, beaches and green spaces of the region.''*

OSCAR aims to support member organisations by:

1 Advocating to local and state government and the public on policy issues that are of regional significance and of concern to our members;
2 Acting to resolve issues of strategic or region-wide relevance that are referred by member organisations;
3 Representing the member organisations on region-wide matters of interest to the community;
4 Maintaining awareness and responsiveness through frequent and regular ordinary meetings and dialogue with member organisations; and
5 Practising professional, honest and ethical conduct.

OSCAR makes many submissions to both State and Local Government and has been called as a Witness to several Parliamentary Committee Public Hearings. We are a non-aligned Not for Profit group who believe in making constructive comment, offering support for various actions, proposing alternative actions and disagreeing with some actions of various levels of government. We have been a Co-respondent in the Planning and Environment Court (P&E) in support of a Council refusal of a Development Application for this site by Stockland in 2022, where the judge complimented the Co-respondents for being constructive.

OSCAR has many members who have had extensive and significant professional experience across a wide range of professions, in private enterprise and/or senior levels in Local, State and the Australian Government.

Further information about OSCAR can be found on our website at: https://www.oscar.org.au/

Acronyms used through the document

AEP	Annual Exceedance Probability of a rainfall event
ASS	Acid sulphate soils
BOM	Bureau of Meteorology, Australia
C&RA	Conservation and Rehabilitation Area
CWB	Constructed water body
DBH	Diameter At Breast Height of a tree
EPP	Environmental Protection Policy
EY	Exceedance per year of a rainfall event
JER	Joint Experts Report
MNES	Matters of National Environmental Significance
MRCP	Maroochy River Conservation Park
PEC	Planning and Environment Court of Queensland
TEC	Threatened Ecological Community

STOCKLAND DEVELOPMENT PTY LIMITED of 133 Castlereagh Street SYDNEY NEW SOUTH WALES 2200 has made a submission to EPBC in relation to its proposed development at Twin Waters West.

Stockland in its submission makes the following statement:

''*The scientific assessments set out in this referral material demonstrate conclusively that the proposed action will not have, and is not likely to have, a significant impact on any Matters of National Environmental Significance. Accordingly, Stockland considers that the proposed action is not a controlled action, however, is referring the proposed action, in good faith, to ensure certainty of process and public transparency.''*

OSCAR maintains that the assessments set out in Stockland's own referral actually demonstrate the opposite and that their application **should** be declared a Controlled Action.

Overall Response

1. Twin Waters West and Surrounds Inc. (TWWS) the local group and the Organisation Sunshine Coast Association of Residents Inc. (OSCAR) an umbrella group representing 35 resident and community groups across the Sunshine Coast rejects the recommendation by the applicant that it's proposed development will have no direct or indirect impact on the Matters of National Environmental Significance (MNES) as described in their Attachment 2 to the referral.

2. Their conclusion is in fact inconsistent with information provided in their own supporting documents and other public documents relating to this project.

3. Conclusions appear in some cases to be based on assumptions rather than investigations while at other times, important issues have not been investigated or not included within the supplied documentation.

4. At the very least, the department should seek the appropriate information upon which an informed decision can be made.

Major Issues

The proposed development includes and is immediately adjacent to the identified Threatened Ecological Community (TEC) Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland comprising at this location largely of the Queensland regional ecosystem 12.2.7.

The MNES species listed in Table 12 of Attachment 2[1] were limited to those on site but not the referral area nor the significantly altered hydrology area into the Maroochy River Conservation Park. It is disappointing that the list does not reflect the actual impacts of the development.

Attachment 2 describes that the ecologists found no evidence of the sedge frog during their surveys (page 67) on-site. The report however did not mention that Queensland Department of Environment and Science (DES) staff have recorded the wallum sedge frog call in the area together with the rocket frog as presented at the Planning and Environment Qld (PEC)[2].

1 Attachment 2 Part 1 of 2 Technical Matters of National Environmental Significance Report 2024
2 Planning and Environment Court No 2460 of 2020 Appeal by Stockland Pty Ltd.

Likewise, the water mouse is listed as "may" be on-site even though the report does acknowledge the species is in the adjoining area (Attachment 2 page 69). There are in fact several active breeding nests in the area monitored by Queensland DES with microchipped individuals. These are the same nests consultants for the applicant claimed were abandoned. These nests are located to the east and south of a constructed water body from which saline overflow is to occur and where pipe construction is planned to occur. It is very disappointing that Table 12 is misleading and the summary discussion of Attachment 2 chose not to include more relevant information.

The Coastal Swamp Sclerophyll Forest TEC is located[3]:

- Within the project site central area (central wetlands)
- Immediately to the south-east (Maroochy River Conservation Park), and
- Immediately bordering the project site to the very north-east and north-east of the central wetlands (adjoining wetlands north and east).

The *central wetlands* are to be isolated from surface flows:

- Largely by a saline constructed water body (CWB) requiring a bund preventing saline flood entry to the wetland and
- By capture of urban stormwater flows for groundwater injection.

These changes discussed below were described in Attachment 2 as *an insignificant change to the hydrological regime concerning the wetlands* (page 87). We are of the opinion that this assumption formed the basis for the impact assessment on MNES. It is difficult to reconcile the significant reduction in standing water proposed with some conclusions.

The *Maroochy River Conservation Park* (MRCP) is to have part of the current fresh water overland flow volume replaced with saline overflow from the CWB.

Salt water leakage into the groundwater of both the central wetlands and MRCP is to occur increasing salinity levels progressively well above background levels. This leakage will be ongoing in spite of the continual maintenance of the groundwater injection controls supplemented with pumping required indefinitely.

The *adjoining wetlands north and east* are to have fill placed almost up to the wetland itself without any significant buffer. This fill potentially includes treated acid sulphate soils (ASS).

Though extensive use of fill is to occur and much of this fill to comprise treated ASS, and essentially seawater will leak into the groundwater and overflow into the MRCP into known acid wetland environments, pH has not been investigated.

3 Attachment 2 Figure 10

Central Wetlands

Diversion of surface water

The central wetlands are currently fed by surface flows from a heavily grassed catchment area of approximately 40 ha largely to the west as determined from State LIDAR, and by groundwater again from the west as reported by referral Attachment19 Twin Waters West Groundwater Assessment 2023.

This catchment was documented by a member of TWWS as supplying sufficient waters during the summer and autumn of 2022-23 to maintain standing water near the outlet of the wetland for over 90 days with either overflow or seepage from the wetland for over 100 days[4]. Flow commenced in late December following a dry period. This event met Bureau of Meteorology (BOM) conditions[5] of a 1EY (exceedance per year) event that is, expected at least once every year. The wetland and catchment exhibited sensitivity to frequent rainfall events (6 EY and >12EY events) during March where an increase in depth of discharge from the wetland occurred in response to these low rainfall events.

Discharge clearly indicated that the catchment could provide significant flows sufficient to maintain inundation of the wetland sufficient for extended periods. TWWS understands that this is ample duration of standing water to sustain frog populations.

The applicant seeks to locate a Constructed Water Body (CWB) comprising saline estuarine waters to the north and west of the wetland. The standing water level of the CWB is above the current freshwater water table for the most part. This CWB essentially isolates the central wetlands from the bulk of its current catchment. As the CWB is essentially seawater, a report by the applicant hydrologist in 2022 advised that overflow from the CWB may be of adverse quality up to the 10% Annual Exceedance Probability of a rainfall event (AEP) regional flood event at which time it may still be brackish under unusual circumstances. As such, a bund is to isolate the central wetlands from flood entry up to the 10% AEP regional flood level.

The construction of and placement of the CWB has isolated the wetlands from any meaningful vegetated catchment.

As part of the applicant's appeal to the PEC, more detailed modelling was produced confirming saline contamination of the groundwater of the TEC would occur from the CWB overturning earlier advice by the applicant claiming that no such contamination would occur. To reduce such salinisation, the applicant proposes a "freshwater curtain'' between the CWB and central wetlands, the water being sourced from bioretention structures capturing up to the 39% local (AEP) event (2-year event) of the adjacent urban runoff with additional capture thereafter by swales. As there is to be insufficient capture of urban runoff to maintain the freshwater curtain under some dry conditions, the water supply is to be augmented with recycled water sourced externally. Surface flows of urban stormwater is to be intercepted and diverted to the groundwater. The impact on the

4 Planning and Environment Court No 2460 of 2020 accepted as lay witness evidence
5 http://www.bom.gov.au/water/designRainfalls/revised-ifd/

central wetlands is demonstrated by modelling reported in Attachment 8[6] extracts of which appear in the figures immediately below.

Isolation of the central wetland from current surface flows during a local storm event

Current conditions

39% AEP (B6-4)

Developed conditions

39% AEP

(C13-4)

10% AEP (B6-3)

10% AEP (C13-3)

Data sources: Attachment 8 Part 1 of 2 Twin Waters West, Pacific Paradise, Flood Study Report 2023 prepared by SLR. Bracketed codes above denote Appendix number of the report

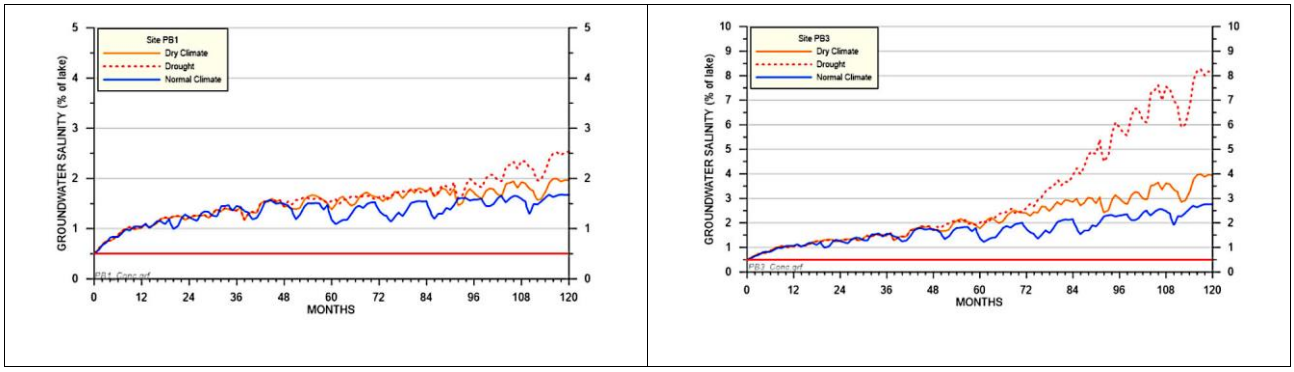
These figures reflect the “insignificant changes” referenced in the MNES report.

Quality of groundwater

Modelling[7] indicates that the curtain is not expected to be fully successful with steady increases in salinity expected in wet periods with further increases during dry periods especially when introducing recycled water (Figures 17 to 19 of Attachment 19). Extracts of their Figure 17 and 19 are reproduced below.

6 Attachment 8 Part 1 of 2 Twin Waters West, Pacific Paradise, Flood Study Report 2023

7 Attachment 19 Twin Waters West Groundwater Assessment 2023



These figures were described by the author of Attachment 19 as demonstrating that salinity "gradually increases with time from its initial concentration of 0.5%, substantially stabilising after 10 years". The figures demonstrate a 3 to 16 fold increase in salinity above current background salinity after 10 years. To TWWS, the figures appear to demonstrate little stabilisation after 10 years with an upward annual trend in all cases. The worst trend modelled indicated groundwater salinity at 8% of seawater and increasing after 10 years.

The ecologists stated in Attachment 3 Appendix I that the increases exhibited by the above modelling were expected to be within natural variation. No data however was presented to demonstrate that the groundwater salinity varies by this amount naturally. In fact the annual variations about a trend line reported in Figures 17 to 19 would be more likely to represent natural variation and this variation is less than the trends themselves.

We are disappointed at the "loose" interpretations of the above model results and are of the opinion that the model demonstrates ongoing deteriorating condition under all scenarios at all sites.

Attachment 6[8] page 6 states that the relevant water quality objectives are for wallum/tannin freshwaters as sourced from Maroochy River Environmental Values and Water Quality Objectives[9]. Maroochy River catchment area is a controlled catchment regulated by the Environmental Protection Water Policy. These objectives include a pH range of 6.2-7 and conductivity of ≤240 µS/cm. Though Attachment 6 concludes that water quality objectives of EPP (Water) 1997 are met, the report does not in fact discuss pH or conductivity. The salinity levels reported in the groundwater study can be an order of magnitude higher than the EPP objective. The conclusion of this report that "Compliance with the EPP (Water) 1997" has been demonstrated is considered by TWWS as unreliable if two key parameters were not even investigated and limited given conflicting data for groundwater.

The surrounding urban areas are to be substantially filled potentially with treated ASS. Both leachate from this fill and water leakage from the CWB are potentially alkaline yet pH of the groundwater has not been investigated.

The PEC hydrology Joint Experts Report (JER) recommended that as the monthly model employed was likely to overestimate actual water available, a daily model should be employed. The JER also

8 Attachment 6 Stormwater Management Plan 2023

9 Maroochy River Environmental Values and Water Quality Objectives – Basin No. 141 (Part), including all tributaries of the Maroochy River (Environmental Protection Water Policy, 2022)

recommended characterisation of the hydrology regime of the wetlands. The only such study we are aware of is that in the flood assessment report (Attachment 8) where the removal of catchment area and diversion of urban flows to the groundwater curtain results in a dry wetland up to the 10% AEP (refer to the figures above) as opposed to the current situation of extended standing water in the wetland during an average season.

Conclusion re Central Wetlands

Clearly, the hydrology of the wetland is to be dramatically altered while Attachment 2 states that there is “an insignificant change to the hydrological regime concerning the wetlands”. The critical qualification of insignificant hydrological change does not appear to have been met.

The applicant claims that the 50 m buffer enhances the central wetland. Application documents, common sense and specialist reports do not support this statement. The current catchment extent is up to 70 m to the north, 210 m to the west and up to 370 m to the south. No reputable information has been provided to conclude that reducing the catchment substantially enhances the wetland. Nor does this buffer replace the hydraulic isolation of this TEC.

The PEC judgement paragraph 16 advised that the failure to protect the central wetland and use of unproven methods was sufficient grounds alone to find against the applicant. The only significant change between the proposal made to the PEC and this referral is the inclusion of a more realistic buffer than the substantially smaller one rigorously defended by the applicant. This change has not altered the drying out of the TEC and in fact slightly increases the salinity of the groundwater over time.

The project remains an identified threat to the central wetland largely as a result of the proximity of the CWB. TWWS notes that this structure is a landscape element of the development that is not prescribed under planning provisions. A preamble to one section of the local planning scheme makes reference to a water feature connecting with the adjacent canal north of the wetland. Council officers reported that this could be satisfied by a swale. The width, depth, location if even present and water type west of the wetland is at the discretion of the applicant.

Maroochy River Conservation Park

Surface water

As with the central wetlands the CWB will isolate the Maroochy River Conservation Park from its north-west catchment and groundwater entering the site from this direction.

Water quality

While the central wetlands are proposed to be quarantined from saline overflow of the CWB, the MRCP is not. Instead an eastern weir is proposed discharging directly into the MRCP. This weir low point is at the same elevation as that of the southern weir and as such will commence to overflow at the same time as the engineered south weir. The central wetlands had to be protected from saline flows from the CWB up to the 10% AEP flood, No such protection has been afforded the MRCP.

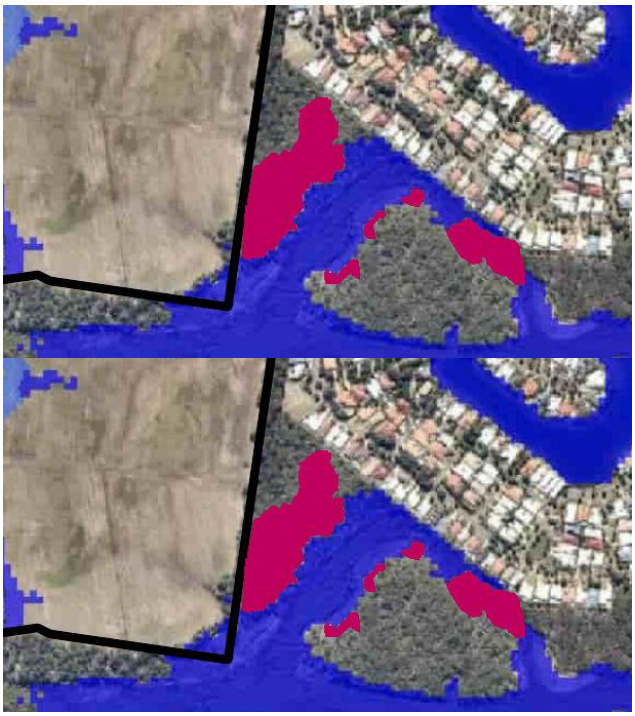
Saline alkaline water is expected to enter the MRCP early in a flood event with salinity decreasing progressively.

Flooding

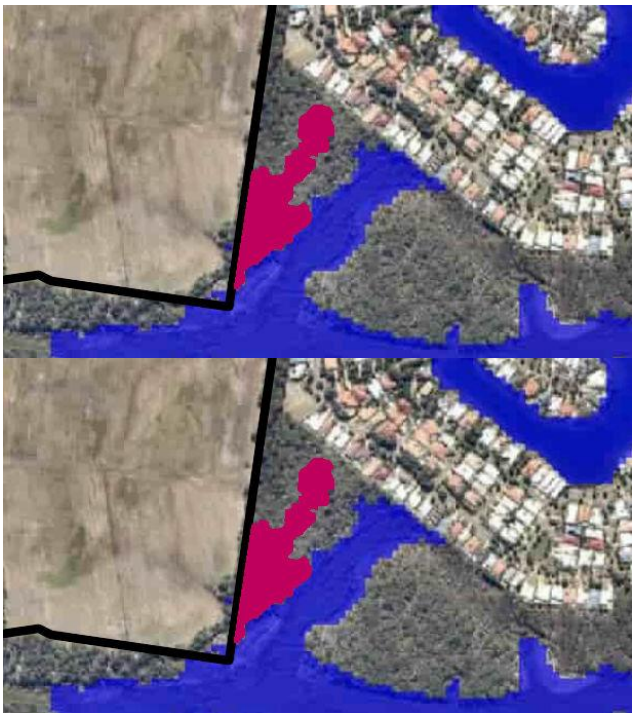
Flood modelling has demonstrated that the eastern weir will alter the flood regime to the MRCP in extent, depth and velocity.

Extent of flooding

As a result of the weir to the MRCP, significant areas of land in the park that do not currently flood even at the 1% AEP storm event are to be inundated after development. Flood modelling results for the 10% and 1% AEP storm events are shown in the figures below. The maximum depth in these previously dry areas is over 0.5 m representing a significant increase in flood level in the park to areas that would otherwise be dry refuge areas.



Location of land (light red) that would otherwise be dry will be flooded after a 1% AEP storm event
Attachment 8 Flood Study Report (2023). Appendix C14-2.



Location of land (light red) that would otherwise be dry will be flooded after a 10% AEP storm event
Attachment 8 Flood Study Report (2023). Appendix C15-2.

Flow velocity

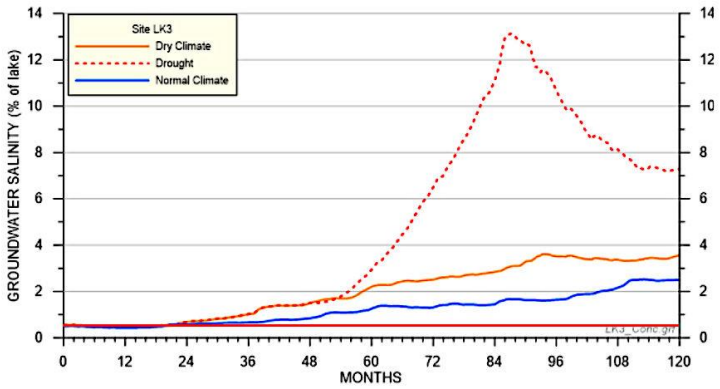
Modelling reports that velocities in some parts of the flooded area are to exceed 0.5 m/s. Velocities may exceed the scour velocities of 0.6 m/s as reported in the 2019 Flood Study. If this excess water concentrates in any drainage channel or flow path, accelerated flows may initiate or worsen erosion.

Quality of groundwater flow to MRCP

The standing water level of the saline CWB is above the water table of the MRCP. A leaky pipe system is proposed to protect the groundwater of the Conservation Park. The performance of this

leaky pipe after a modelled 10-year period is shown in the figure below for a test location in the Conservation Park. A steady decline in water quality through increasing salinity is demonstrated[10].

The background salinity of the aquifer is reported within the groundwater assessment as 0.5% of the CWB salinity[11]. The relevant water quality objective for salinity reported in the Stormwater management plan also approximates 0.5%[12]. The adjacent figure from the groundwater assessment confirms that groundwater quality markedly exceeds the required criteria[13].



Salinity change to groundwater of the Conservation Park after 10 years; target water quality objective is denoted by the solid red line

Modelling also indicated that there would be insufficient flow from the urban areas to maintain the curtain and recycled water was planned to be imported during some dry periods. As the water planned to be imported itself has a salinity of 3% of seawater, accelerated salinisation of groundwater will occur under these circumstances as shown in the “drought” scenario of the above figure.

The increasing salinity indicates some mixing of CWB water with groundwater. The water quality objective for pH is acid while the CWB water is expected to be alkaline in line with seawater. An evaluation of the pH of receiving waters has not been conducted nor an assessment of other contaminants to existing groundwater.

To capture water for groundwater injection, the model assumes all intermittent surface flows from the new estate will be captured and injected underground at a steady daily rate over each month. This remains unchanged from that proposed in 2022 for the PEC hearing. The expert panel convened at that time identified this monthly average a weakness of the model and recommended modelling on a daily basis. The model remains a monthly average model and likely overestimates the effectiveness of the groundwater curtain.

10 Attachment 19 Twin Waters West Groundwater Assessment, N Merrick. July 2023. page 17
11 Attachment 19 Twin Waters West Groundwater Assessment, N Merrick. July 2023. page 17
12 Attachment 6 Stormwater Management Plan. Covey Associates. August 2023. Report No: 200053 Rpt Iss B page 9
13 Attachment 19 Twin Waters West Groundwater Assessment, N Merrick. July 2023. Figure 20

Adjoining wetland to the north-east and centre

Although claiming that a 50 m buffer is in place to the TEC, only a negligible buffer is proposed to these wetlands. Fill potentially comprising treated acid sulphate soils (ASS) is proposed up to the actual wetland. We have been informed that the limited buffer to the north-east is to be 2-3m only. We note that the tree protection zone derived from the Australia Standard AS 4970-2009 would approximate 7.2 m for the 600 mm DBH trees measured by TWWS. It appears the applicant does not recognise the relevant standard.

The Queensland ASS Technical Manual[14] states *Disturbance of acid sulfate soils adjacent to sensitive, acidic soft water environments must be avoided since use of neutralising agents will produce leachates that raise aquatic pH, adding hardness to water and putting acidophilic ecosystems at risk.* Consideration of this issue has not been addressed to our knowledge where areas are to be filled almost to the wetland itself.

Other matters

Climate change

The applicant has included the assessment that under worse-case climate change and without any mitigation measures, part of the central wetland will be worse off without development. This approach reverses the precautionary approach arguing for development if a worst-case impact is to occur. Importantly, the groundwater study failed to describe the source of salinity to the wetland being two stormwater pipes and a grassed channel approximately 300 m long all of which would allow rapid canal water entry to the edge of the wetland at elevated levels. All three sources can be easily redesigned to prevent reverse flows. We believe that it is professionally deficient for these options not to be included within the assessment.

Misleading statements within the referral

The applicant has elected to include wide ranging material within the referral[15]. Unfortunately, many of the statements are misleading or erroneous. It is this type of selective summarising that has led the community to not trust the applicant, a sentiment echoed in the PEC.

- page 4 *the stringent conditions and management plans prescribed in the Preliminary Approval, the Twin Waters West Masterplanned Community will not only meet, but exceed, the standards required to protect MNES*:

The conditions referred here do not appear to have transparent criteria for successful habitat protection, acceptable receiving water quality objectives or supporting monitoring programmes.

- page 5 *a minimum 50 m setback between new allotments and the central wetland*:

This statement is correct only for the on-site portion of the central wetland. The off-site portion is not to be buffered to any significant extant. It should also be noted that this buffer

14 Dear, S., Ahern, C., O'Brien, L., et al. (2014). Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines, Brisbane: Department of Science, Information Technology, Innovation and the Arts, Queensland Government.

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has been argued as an offset to the local conservation area also present with development to occur within this protected area under the planning scheme.

- page *8 Outcomes of the engagement over many years - feedback indicates general community acceptance and anticipation of the project*:

The proportion of local objections has remained relatively consistent since the planning scheme amendments of 2017, through two applications to local government and community groups participating in the Planning and Environment Court in 2022 as Co-respondents in support of TWWS and the Council refusal of the second application. Supporting groups for that refusal included Organisation Sunshine Coast Association of Residents (OSCAR), Sunshine Coast Environment Council (SCEC) and Development Watch (DW).

The ''increasing'' support for the Stockland Proposal has in fact largely come from 20 km distant and extending as far as Melbourne. It is disappointing that the author does not appreciate the difference between corporate and local support.

- page 20 *Extensive site investigations have been completed to identify and describe the flora and fauna attributes across the referral area:*

Studies have been confined to on-site given that until this application, the applicant consistently declared it was not required to submit a referral. The full area to be impacted by changes in hydrology were not included in the referral area.

- page 23 *Describe any Indigenous heritage values:*

The applicant's response did not make reference to the Cultural heritage sites relating to a Aboriginal Intangible Place (central wetlands and MRCP) or Aboriginal Historical Place (Settlers Park – of which over 60% is to developed for road infrastructure).

- page 24 *Hydrology - land management and this site was no different. Drains were constructed to channel water from west to east and south. This would have undoubtedly changed the hydrological/inundation regime of the wetland in many ways. The subsequent effects of the farm drains on the wetland occurred over many years and the characteristics of wetland flora would have adjusted to the changing conditions*:

It seems incongruous that the applicant acknowledges changes of agricultural practices on the central wetlands then proceeds to deprive the wetlands of surface water assuming only insignificant changes.

- page 35 *Impacts to MNES*:

The response does not acknowledge the hydrological impacts to the central wetlands, flooding of MRCP by saline water, increasing salinity of groundwater, location of treated ASS fill adjacent to wetlands nor location of fill within what would be recognised as tree protection zone under Australian Standards.

- page 40 *central wetlands*:

The notable omission to the discourse here is the lack of reference to maintenance of the surface hydrology.

- page 41 *stormwater management infrastructure will support wetland functioning by way of directing suitable stormwater to the central wetland area as part of maintaining pre-development inflows:*

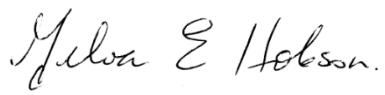
  The supporting reports quoted relate only to water levels (which are maintained or increased) and salinity (which progressively deteriorates). The reports do not address surface flows.

Overall Conclusion

OSCAR and its member groups thank the Australian Government for the opportunity to identify flaws in the Stockland Application under the EPBC Act.

OSCAR maintains that the application presented by Stockland for the Twin Waters West site **should** be declared a **Controlled Action** under the EPBC Act.

Yours sincerely



Melva Hobson PSM

President

Organisation Sunshine Coast Association of Residents Inc. (OSCAR)